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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,450	11/30/2001	Shamim M. Malik	50623.61	3442

7590 08/06/2007
Squire, Sanders & Dempsey L.L.P.
One Maritime plaza, Suite 300
San Francisco, CA 94111

EXAMINER

SEVERSON, RYAN J

ART UNIT	PAPER NUMBER
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3731

MAIL DATE	DELIVERY MODE
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08/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/997,450

Applicant(s)

MALIK ET AL.

Examiner

Ryan Severson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 13-19 and 21-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-19 and 21-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-10, 13-19, and 21-45 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. **Claims 1-10, 13-19, and 21-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lazarov et al. (6,110,204) in view of Shimida (JP11-313884).**
3. Lazarov et al. (hereinafter Lazarov) reference discloses the titanium-nitride-oxide (TiN_xO_y) compound disposed about a stent substrate substantially as claimed. However, Lazarov reference does not disclose the compound is implanted on a molecular or atomic level at a depth in the surface of the stent. Attention is drawn to Shimida reference, which teaches a stent can have a coating material implanted at a depth within the surface of the stent (see figure 1) to reduce the probability of the coating from peeling off the stent, thereby providing an improvement over a stent with a standard coating applied on its surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the well-known process of Shimida to improve the well-known product of Lazarov by having the coating (TiN_xO_y) compound implanted on a molecular level to a depth in the surface of the stent instead of merely about the stent to reduce the probability of the coating from peeling off the stent.

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4. Regarding the above, by improving the stent of Lazarov in the manner described by Shimida, the stent with coating does not lose its biocompatibility because the blood and tissue still will not come into contact with the stent substrate. Shimida merely teaches a well-known method of providing a more secure connection between the coating and the stent substrate.

5. Regarding claims 7, 17, 24, and 40, the use of stainless steel as a stent is well-known in the art, and is evidenced by applicants admission that stainless steel is commonly used for stents (see the last sentence of paragraph 13 of applicant's disclosure). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the stent of Lazarov of stainless steel to provide a stent that is inexpensive to manufacture due to abundance of the material and it's ease of manufacturing and processing. Further, Shimida discloses a stent may be made of stainless steel (see paragraph 17 of Shimida).

6. Regarding claims 3, 6, 30, and 33, the thickness and depth of the coating or implanted layer is well-known in the art, and is evidenced by Kirkpatrick et al. (6,676,989) in column 3, lines 51-55 as pointed out by applicant. This depth gives an advantage of providing a secure bond between the coating layer and the stent substrate without destroying the structural integrity of the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implant the compound of Lazarov in view of Shimida to a depth and thickness as claimed to provide a secure bond between the coating layer and the stent substrate without destroying the structural integrity of the substrate.

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7. Regarding claims 34, 42, and 44, Lazarov does not disclose the use of the carbon compound as claimed. Attention is again drawn to Shimida reference, which teaches a carbon compound can be implanted into the stent substrate to increase the hardness of the coating, thereby increasing the wear resistance of the stent. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the carbide of Shimida to replace the oxide of Lazarov to increase the hardness of the coating, thereby increasing the wear resistance of the stent.

8. **Claims 1-10, 13-19, and 21-33, 35-41, 43, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Windecker et al. ("Stent Coating With Titanium-Nitride-Oxide for Reduction of Neointimal Hyperplasia") in view of Morra et al. (6,632,470).** Windecker et al. (hereinafter Windecker) reference discloses the use of the titanium-nitride-oxide (TiN_xO_y) compound disposed about a stent substrate substantially as claimed. Windecker also discloses the stents can be stainless steel. However, Windecker reference does not disclose the compound is implanted on a molecular or atomic level at a depth in the surface of the stent. Attention is drawn to Morra et al. (hereinafter Morra) reference, which teaches modification of the surface of a stent using any materials (see column 5, lines 11-14 and 32-35) to provide a surface that is substantially more biocompatible. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the well-known process of Morra to improve the well-known product of Windecker by implanting the coating of Windecker with the surface of the stent to improve biocompatibility of the stent and to ensure the coating compound (TiN_xO_y) does not peel away from the stent.

9. Regarding claims 3, 6, 30, and 33, the thickness and depth of the coating or implanted layer is well-known in the art, and is evidenced by Kirkpatrick et al. (6,676,989) in column 3, lines 51-55 as pointed out by applicant. This depth gives an advantage of providing a secure bond between the coating layer and the stent substrate without destroying the structural integrity of the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implant the compound of Windecker in view of Morra to a depth and thickness as claimed to provide a secure bond between the coating layer and the stent substrate without destroying the structural integrity of the substrate.

Conclusion

10. Examiner points out that the well-known products of either Lazarov or Windecker can be improved by the well-known processes of either Shimida or Morra, even though only exemplary combinations have been described above. The mere improvement upon an existing well-known product by use of an existing well-known process is well within the level of one of ordinary skill in the art and does not create a novel invention. The use of the known processes to improve the known products would not have resulted in unexpected results. One of ordinary skill in the art would readily recognize that implanting the compound in the surface of the stent instead of merely coating the stent would provide a more durable bond between the coating and stent.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Severson whose telephone number is (571) 272-3142. The examiner can normally be reached on Monday - Friday 9:00 - 5:30.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anhtuan Nguyen can be reached on (571) 272-4963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RS.

Ryan Severson
July 31, 2007

Jackie Tan-Uyen Ho
(JACKIE) TAN-UYEN HO
SUPERVISORY PATENT EXAMINER
08/01/07